Notice of Rulemaking Hearing
Department of Environment and Conservation
Division of Water Supply

There will a hearing before the Division of Water Supply Staff representing the Water Quality Control Board of the Department of Environment and Conservation to hear comments from the public concerning amendments to the Regulations for Public Water Systems and Drinking Water Quality Chapter 1200-5-1 pursuant to T.C.A. 68-221-701 et seq. The proposed amendments were drafted primarily to incorporate into state regulations the revisions to the uranium regulations promulgated by the EPA December 7, 2000, and the filter backwash recycling rule promulgated by the EPA June 8, 2001.

Fleming Training Center
2022 Blanton Drive
Main Auditorium
Murfreesboro, TN

10:00 AM CST

November 7, 2001

Written comments will be also considered if received at the Division of Water Supply, 401 Church Street, Nashville, TN 37243-1549 by the close of business November 30, 2001.

Individuals with disabilities who wish to participate in these proceedings (to review these filings) should contact the Tennessee Department of Environment and Conservation to discuss any auxiliary aids or services needed to facilitate such participation. Such contact may be made in person, by writing, telephone, or other means and should be made no less than ten days prior to the (scheduled meeting date) (date such party intends to review such filings), to allow time to provide such aid or service. Contact the ADA Coordinator, 401 Church Street, 7th Floor L & C Tower, Nashville, TN 37243, 1-888-867-2757. Hearing impaired callers may use the Tennessee Relay Service (1-800-848-0298.

For a copy of the entire text of this notice of rulemaking hearing, contact the nearest office of the Tennessee Division of Water Supply at 1-888-891-8332 or the central office of the Division at 615-532-0191. A complete text of the proposed Rules may also be found by visiting the Department of Environment and Conservation's Web site at http://www.state.tn.us/environment/dws.

Substance of the Proposed Rules

Proposed Rules
of
Tennessee Department of Environment and Conservation
Division of Water Supply
Chapter 1200-5-1
Public Water Systems

Amendments

Paragraph (5) only of Rule 1200-5-1-.06 Maximum Contaminant Levels and Maximum Residual Disinfectant Levels is amended by deleting the existing paragraph in its entirety and by the addition of new language so that as amended paragraph (5) shall read:

(5) Radionuclides-

(a) The following maximum contaminant levels for radium-226, radium-228, and gross alpha particle radioactivity are applicable to all community water systems:

1. Combined radium-226 and radium-228: The maximum contaminant level for combined radium-226 and radium-228 is 5 pCi/L. The combined radium-226 and radium-228 value is determined by the addition of the results of the analysis for radium-226 and the analysis for radium-228.

2. Gross alpha particle activity (including radium-226 but excluding radon and uranium): The maximum contaminant level for gross alpha particle activity (including radium-226 but excluding radon and uranium) is 15 pCi/L.

(b) Maximum contaminant levels for beta particle and photon radioactivity from man-made radionuclides in community water systems shall be as follows:

1. The average annual concentration of beta particle and photon radioactivity from man-made radionuclides in drinking water shall not produce an annual dose equivalent to the total body or any internal organ greater than four (4) millirem/year.

2. Except for the radionuclides listed in Table A, the concentration of man-made radionuclides causing four (4) mrem total body or organ dose equivalents shall be calculated on the basis of a two (2) liter per day drinking water intake using the 168 hour data listed in "Maximum Permissible Body Burdens and Maximum Permissible Concentration of Radionuclides in Air or Water for Occupational Exposure," NBS Handbook 69 as amended August, 1963, U.S. Department of Commerce. If two or more radionuclides are present, the sum of their annual dose equivalent to the total body or to any organ shall not exceed four (4) millirem/year.

Table A
Average Annual Concentrations Assumed
to Produce a Total Body or Organ Dose of a 4 mrem/yr.

Radionuclide	Critical Organ	pCi per Liter
Tritium	Total Body	20,000
Strontium-90	Bone Marrow	8

(c) MCL for uranium. The maximum contaminant level for uranium is 30 micrograms per liter.

(d) Compliance dates.

1. Compliance dates for combined radium-226 and -228, gross alpha particle activity, gross beta particle and photon radioactivity, and uranium: Community water systems must comply with the MCLs listed in subparagraphs (a), (b), and (c), beginning December 8, 2003 and compliance shall be determined in accordance with the requirements of 1200-5-1-.11. Compliance with reporting requirements for the radionuclides under appendix A to Consumer Confidence Reports (1200-5-1-.35) and Appendices A and B to Public Notification (1200-5-1-.19) is required on December 8, 2003.

(e) Best Available Technologies

The Department hereby identifies as indicated in the following table the best technology available for achieving compliance with the maximum contaminant levels for combined radium-226 and -228, uranium, gross alpha particle activity, and beta particle and photon radioactivity.

(f) No variance or exemption for compliance with the MCLs listed in 1200-5-1-.06(5) are allowed.

Table B.--BAT for Combined Radium-226 and Radium-228, Uranium, Gross Alpha Particle Activity, and Beta Particle and Photon Radioactivity

Contaminant	BAT
1. Conbined radium-226 and radium-228	Ion exchange, reverse osmosis, lime softening.
2. Uranium	Ion exchange, reverse osmosis, lime softening, coagulation/filtration
3. Gross alpha particle activity(excluding Radon and Uranium)	Reverse osmosis
4. Beta particle and photon radioactivity	Ion exchange and reverse osmosis

(h) Small systems compliance technologies list for radionuclides.

Table C.--List of Small Systems Compliance Technologies for Radionuclides and Limitations to Use

Unit Technologies	Limitations (see foot-notes)	Operator skill level required [1]	Raw water quality range and considerations.[1]
1. Ion Exchange (IE)	(a)	Intermediate	All ground waters.
2. Point of use (POU[2]) IE	(b)	Basic	All ground waters.
3. Reverse osmosis (RO)	(c)	Advanced	Surface waters usually require pre-filtration.
4. POU[2] RO	(b)	Basic	Surface waters usually require pre-filtration.
5. Lime softening	(d)	Advanced	All waters.
6. Green sand flitration	(e)	Basic	
7. Coprecipitation with Barium Sulfate	(f)	Intermediate to Advanced	Ground waters with suitable water quality.
8. Electrodialysis/electrodialysis reversal		Basic to imtermediate	All ground waters.
9. Pre-formed hydrous Manganese oxide filtration	(g)	Intermediate	All ground waters.
10. Activated alumia	(a)(h)	Advanced	All ground waters; competing anion concentrations may affect regeneration frequency.
11. Enhanced coagulation/filtration	(i)	Advanced	Can treat a wide range of water qualities

[1] National Research Council (NRC). Safe Water from Every Tap: Improving Water Service to Small Communities. National Academy Press. Washington, D.C. 1997.

[2] A POU, or ``point-of-use" technology is a treatment device installed at a single tap used for the purpose of reducing contaminants in drinking water at that one tap. POU devices are typically installed at the kitchen tap. See the April 21, 2000 NODA for more details.

Limitations Footnotes: Technologies for Radionuclides:

a The regeneration solution contains high concentrations of the contaminant ions. Disposal options should be carefully considered before choosing this technology.

b When POU devices are used for compliance, programs for long-term operation, maintenance, and monitoring must be provided by water utility to ensure proper performance.

c Reject water disposal options should be carefully considered before choosing this technology. See other RO limitations described in the SWTR Compliance Technologies Table.

d The combination of variable source water quality and the complexity of the water chemistry involved may make this technology too complex for small surface water systems.

e Removal efficiencies can vary depending on water quality.

f This technology may be very limited in application to small systems. Since the process requires static mixing, detention basins, and filtration, it is most applicable to systems with sufficiently high sulfate levels that already have a suitable filtration treatment train in place.

g This technology is most applicable to small systems that already have filtration in place.

h Handling of chemicals required during regeneration and pH adjustment may be too difficult for small systems without an adequately trained operator.

i Assumes modification to a coagulation/filtration process already in place.

Table D.--Compliance Technologies by System Size Category for Radionuclide NPDWR's

Contaminant	Compliance Technologies [1] for system size categories (population served)		
	25-500	501-3,300	3301-10,000
1. Combined radium-226 and radium-228	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9	1,2,3,4,5,6,7,8,9
2. Gross alpha particle activity	3.4	3.4	3,4
3. Beta particle activity and photon acivity	1,2,3,4	1,2,3,4	1,2,3,4
4. Uranium	1,2,4,10,11	1,2,3,4,5,10,11	1,2,3,4,5,10,11

Note:[1] Numbers correspond to those technologies found listed in table C.

Rulemaking Authority: T.C.A. Sections 68-221-704 and T.C.A. 4-5-202
Substantive Authority: T.C.A. Sections 68-221-701 et. seq.

Amendments

Rule 1200-5-1-.11 Radionuclide Sampling and Analytical Methods is amended by deleting the existing language in its entirety and by the additional of additional language so that as amended it shall read:

1200-5-1-.11 Radionuclide Sampling and Analytical Methods

(1) Analytical methods used to determine compliance with Rule 1200-5-1-.06(5) shall be in accordance with Table 1200-5-1-.11(1). Maximum contaminant levels and sampling and analytical requirements for radionuclides are not applicable to non-community systems.

Table 1200-5-1-.11(1)

		Reference (method or page number)								
Contaminant	**Methodology**	**EPA[1]**	**EPA[2]**	**EPA[3]**	**EPA[4]**	**SM[5]**	**ASTM[6]**	**USGS[7]**	**DOE[8]**	**Other**
Naturally occurring: Gross alpha[11] and beta.	Evaporation	900.0	p 1	00-01	p 1	302, 7110 B		R-1120-76		
Gross alpha[11]	Co-precipitation			00-02		7110 C				
Radium 226	Radon emanation	903.1	p 16	Ra-04	p 19	7500-Ra C	D 3454-91	R-1141-76	Ra-05	N.Y.[9]
	Radio chemical	903.0	p 13	Ra-03		304, 305, 7500-Ra B	D 2460-91	R-1140-76		
Radium 228	Radio chemical	904.0	p 24	Ra-05	p 19	304, 7500-Ra D		R-1142-76		N. Y.[9] N. J. [10]
Uranium[12]	Radio chemical	908.0				7500-U B				
	Fluorometric	908.1				7500-U C (17th Ed.)	D 2907-91	R-1180-76 R-1181-76	U-04	
	Alpha spectrometry			00-07	P 33	7500-U C (18th or 19th Ed.)	D 3972-90	R-1182-76	U-02	
	Laser Phosophorimetry						D 5174-91			
Man-made Radioactive cesium.	Radio chemical	901.0	p 4			7500-Cs B	D 2459-72	R-1111-76		
	Gamma ray spectrometry.	901.1			p 92	7120 (19th Ed.)	D 3649-91	R-1110-76	4.5.2.3	
Radioactive iodine	Radio chemistry	902.0	p 6 p 9			7500-I B 7500-I C 7500-I D	D 3649-91			
	Gamma ray spectrometry.	901.1			p 92	7120 (19th Ed.)	D 4785-88		4.5.2.3	
Radioactive Strontium 89, 90.	Radio chemical	905.0	p 29	Sr-04	p 65	303, 7500-Sr B		R-1160-76	Sr-01 Sr-02	
Tritium	Liquid scintillation	906.0	p 34	H-02	p 87	306, 7500-3H B	D 4107-91	R-1171-76		
Gamma emitters	Gamma ray	901.1			p 92	7120 (19th Ed.)	D 3649-91	R-1110-76	4.5.2.3	
	Spectrometry	902.0 901.0				7500-Cs B 7500-I B	D 4785-88			

The procedures shall be done in accordance with the documents listed below. The incorporation by reference of documents 1 through 10 was approved by the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. Copies of the documents may be obtained from the sources listed below. Information reguarding obtaining these documents can be obtained from the Safe Drinking Water Hotline at 800-426-4691. Documents may be inspected at EPA's Drinking Water Docket, 401 M Street, SW., Washington, DC 20460 (Telephone: 202-260-3027); or at the Office of Federal Register, 800 North Capitol Street, NW., Suite 700, Washington, DC.

[1] "Prescribed Procedures for Measurement of Radioactivity in Drinking Water", EPA 600/4-80-032, August 1980. Available at U. S. Department of Commerce, National Technical Information Service (NTIS), 5285 Port Royal Road, Springfield, VA 22161 (Telephone 800-553-6847), PB 80-224744.

[2] "Interim Radiochemical Methodology for Drinking Water", EPA 600/4-75-008(revised), March 1976. Available at NTIS, ibid. PB 253258.

[3] "Radiochemistry Procedures Manual", EPA 520/5-84-006, December 1987. Available at NTIS, ibid. PB 84-215581.

[4] "Radiochemical Analytical Procedures for Analysis of Environmental Samples", March 1979. Available at NTIS, ibid. EMSL LV 053917.

[5] "Standard Methods for the Examination of Water and Wastewater", 13th, 17th, 18th, 19th Editions, 1971, 1989, 1992, 1995. Available at American Public Health Association, 1015 Fifteenth Street N. W., Washington, D. C. 20005. All methods are in the 17th, 18th, and 19th editions except 7500-U C Fluorometric Uranium was discontinued after the 17th Edition, 7120 Gamma Emitters is only in the 19th Edition, and 302, 303, 304, 305 and 306 are only in the 13th Edition.

[6] *Annual Book of ASTM Standards*, Vol. 11.02, 1994. Available at American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428.

[7] "Methods for Determination of Radioactive Substances in Water and Fluvial Sediments", Chapter A5 in Book 5 of *Techniques of Water-Resources Investigations of the United States Geological Survey*, 1977. Available at U. S. Geological Survey (USGS) Information Services, Box 25286, Federal Center, Denver, CO 80225-0425.

[8] "EML Procedures Manual", 27th Edition, Volume 1, 1990. Available at the Environmental Measurements Laboratory, U. S. Department of Energy (DOE), 376 Hudson Street, New York, NY 10014-3621.

[9] "Determination of Ra-226 and Ra-228 (Ra-02)", January 1980, Revised June 1982. Available at Radiological Sciences Institute Center for Laboratories and Research, New York State Department of Health, Empire State Plaza, Albany, NY 12201.

[10] "Determination of Radium 228 in Drinking Water", August 1980. Available at State of New Jersey, Department of Environmental Protection, Division of Environmental Quality, Bureau of Radiation and Inorganic Analysis Services, 9 Ewing Street, Trenton, NJ 08625.

[11] Natural uranium and thorium-230 are approved as gross alpha calibration standards for gross alpha with co-precipitation and evaporation methods; americium-241 is approved with co-precipitation methods.

[12] If uranium (U) is determined by mass, a 0.67 pCi/ug of uranium conversion factor must be used. This conservative factor is based on the 1:1 activity ratio of U-234 to U-238 that is characteristic of naturally occurring uranium.

(2) When the identification and measurement of radionuclides other than those listed in Table 1200-5-1-.11(1), the following references are to be used, except in cases where alternative methods have been approved by the Department.

(a) Procedures for Radiochemical Analysis of Nuclear Reactor Aqueous Solutions, H. L. Krieger and S. Gold, EPA-RA-73-014, USEPA, Cincinnati, Ohio, May, 1973.

(b) HASL Procedure Manual, Edited by John H. Harley, HASL 300, ERDA Health and Safety Laboratory, New York, NY., 1973.

(3) For the purpose of monitoring radioactivity concentrations in drinking water, the required sensitivity of the radioanalysis is defined in terms of a detection limit. The detection limit shall be that concentration which can be counted with a precision of plus or minus 100 percent at the 95 percent confidence level (1.96 sigma where sigma is the standard deviation of the net counting rate of the sample.)

(a) To determine compliance with gross alpha particle activity, radium-226, radium-228 and uranium the detection limit shall not exceed the concentration in the Table to this subparagraph.

Detection Limits for Gross Alpha Particle Activity, Radium-226, Radium-228, and Uranium

Contaminant	Detection Limit
Gross alpha particle activity	3pCi/L
Radium-226	1pCi/L
Radium-228	1pCi/L
Uranium	1/10 the MCL

(b) To determine compliance with beta particle and photon activity the detection limit shall not exceed the concentrations listed in the following table.

Detection Limits for Man-made Beta Particle and Photon Emitters

Radionuclide	Detection Limit
Tritium	1000pCi/L
Strontium-89	10pCi/L
Strontium-90	2pCi/L
Iodine-131	1pCi/L
Cesium-134	10pCi/L
Gross beta	4pCi/L
Other radionuclides	1/10 of the applicable limit

(4) To judge compliance with the maximum contaminant levels listed in 1200-5-1-.06(5) averages of data shall be used and shall be rounded to the same number of significant figures as the maximum contaminant level for the substance in question.

(5) The state has the authority to determine compliance or initiate enforcement action based upon analytical results or other information compiled by their sanctioned representatives and agencies.

(6) Monitoring and compliance requirements for gross alpha particle activity, radium -226, radium 228, and uranium.

(a) Community water systems (CWSs) must conduct initial monitoring to determine compliance with radium-226 and 228, gross alpha particle activity and uranium activity by December 31, 2007. For the purposes of monitoring for gross alpha particle activity, radium-226, radium-228, and uranium and beta particle activity and photon activity in drinking water ``detection limit'' is defined as in 1200-5-1-.11.

1. Applicability and sampling location for existing community water systems or sources. All existing CWSs using ground water, surface water or systems using both ground and surface water (hereafter referred to as systems) must sample at every entry point to the distribution system that is representative of all sources being used (hereafter called a sampling point) under normal operating conditions. The system must take each sample at the same sampling point unless conditions make another sampling point more representative of each source or the State has designated a distribution system location, in accordance with subparagraph (a)2(ii)(III).

(i) Applicability and sampling location for new community water systems or sources. All new CWSs or CWSs that use a new source of water must begin to conduct initial monitoring for the new source within the first quarter after initiating use of the source. CWSs must conduct more frequent monitoring when ordered by the State in the event of possible contamination or when changes in the distribution system or treatment processes occur which may increase the concentration of radioactivity in finished water.

2. Initial monitoring: Systems must conduct initial monitoring for gross alpha particle activity, radium-226, radium-228, and uranium as follows:

(i) Systems without acceptable historical data, as defined below, must collect four consecutive quarterly samples at all sampling points before December 31, 2007.

(ii) Grandfathering of data: States may allow historical monitoring data collected at a sampling point to satisfy the initial monitoring requirements for that sampling point, for the following situations.

(I) To satisfy initial monitoring requirements, a community water system having only one entry point to the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003.

(II) To satisfy initial monitoring requirements, a community water system with multiple entry points and having appropriate historical monitoring data for each entry point to the distribution system may use

the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003.

(III) To satisfy initial monitoring requirements, a community water system with appropriate historical data for a representative point in the distribution system may use the monitoring data from the last compliance monitoring period that began between June 2000 and December 8, 2003, provided that the State finds that the historical data satisfactorily demonstrates that each entry point to the distribution system is expected to be in compliance based upon the historical data and reasonable assumptions about the variability of contaminant levels between entry points. The State must make a written finding indicating how the data conforms to these requirements.

(iii) For gross alpha particle activity, uranium, radium-226, and radium-228 monitoring, the State may waive the final two quarters of initial monitoring for a sampling point if the results of the samples from the previous two quarters are below the detection limit.

(iv) If the average of the initial monitoring results for a sampling point is above the MCL, the system must collect and analyze quarterly samples at that sampling point until the system has results from four consecutive quarters that are at or below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the State.

3. Reduced monitoring: States may allow community water systems to reduce the future frequency of monitoring from once every three years to once every six or nine years at each sampling point, based on the following criteria.

(i) If the average of the initial monitoring results for each contaminant (i.e., gross alpha particle activity, uranium, radium-226, or radium-228) is below the detection limit specified in 1200-5-1-.11, the system must collect and analyze for that contaminant using at least one sample at that sampling point every nine years.

(ii) For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is at or above the detection limit but at or below 1/2 the MCL, the system must collect and analyze for that contaminant using at least one sample at that sampling point every six years. For combined radium-226 and radium-228, the analytical results must be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is at or above the detection limit but at or below 1/2 the MCL, the system must collect and analyze for that contaminant using at least one sample at that sampling point every six years.

(iii) For gross alpha particle activity and uranium, if the average of the initial monitoring results for each contaminant is above 1/2 the MCL but at or below the MCL, the system must collect and analyze at least one sample at that sampling point every three years. For combined radium-226 and radium-228, the analytical results must be combined. If the average of the combined initial monitoring results for radium-226 and radium-228 is above 1/2 the MCL but at or below the MCL, the system must collect and analyze at least one sample at that sampling point every three years.

(iv) Systems must use the samples collected during the reduced monitoring period to determine the monitoring frequency for subsequent monitoring periods (e.g., if a system's sampling point is on a nine year monitoring period, and the sample result is above 1/2 MCL, then the next monitoring period for that sampling point is three years).

(v) If a system has a monitoring result that exceeds the MCL while on reduced monitoring, the system must collect and analyze quarterly samples at that sampling point until the system has results from four consecutive quarters that are below the MCL, unless the system enters into another schedule as part of a formal compliance agreement with the State.

4. Compositing: To fulfill quarterly monitoring requirements for gross alpha particle activity, radium-226, radium-228, or uranium, a system may composite up to four consecutive quarterly samples from a single entry point if analysis is done within a year of the first sample. States will treat analytical results from the composite as the average analytical result to determine compliance with the MCLs and the future monitoring frequency. If the analytical result from the composited sample is greater than 1/2 MCL, the State may direct the system to take additional quarterly samples before allowing the system to sample under a reduced monitoring schedule.

5. A gross alpha particle activity measurement may be substituted for the required radium-226 measurement provided that the measured gross alpha particle activity does not exceed 5 pCi/L. A gross alpha particle activity measurement may be substituted for the required uranium measurement provided that the measured gross alpha particle activity does not exceed 15 pCi/L. The gross alpha measurement shall have a confidence interval of 95% (1.65, where is the standard deviation of the net counting rate of the sample) for radium-226 and uranium. When a system uses a gross alpha particle activity measurement in lieu of a radium- 226 and/or uranium measurement, the gross alpha particle activity analytical result will be used to determine the future monitoring frequency for radium-226 and/or uranium. If the gross alpha particle activity result is less than detection, 1/2 the detection limit will be used to determine compliance and the future monitoring frequency.

(b) Monitoring and compliance requirements for beta particle and photon radioactivity. To determine compliance with the maximum contaminant levels

for beta particle and photon radioactivity, a system must monitor at a frequency as follows:

1. Community water systems (both surface and ground water) designated by the State as vulnerable must sample for beta particle and photon radioactivity. Systems must collect quarterly samples for beta emitters and annual samples for tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one quarter after being notified by the State. Systems already designated by the State must continue to sample until the State reviews and either reaffirms or removes the designation.

    (i) If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 50 pCi/L (screening level), the State may reduce the frequency of monitoring at that sampling point to once every 3 years. Systems must collect all samples required in subparagraph (b)1 during the reduced monitoring period.

    (ii) For systems in the vicinity of a nuclear facility, the State may allow the CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry point(s), where the State determines if such data is applicable to a particular water system. In the event that there is a release from a nuclear facility, systems which are using surveillance data must begin monitoring at the community water system's entry point(s) in accordance with subparagraph (b)1.

2. Community water systems (both surface and ground water) designated by the State as utilizing waters contaminated by effluents from nuclear facilities must sample for beta particle and photon radioactivity. Systems must collect quarterly samples for beta emitters and iodine-131 and annual samples for tritium and strontium-90 at each entry point to the distribution system (hereafter called a sampling point), beginning within one quarter after being notified by the State. Systems already designated by the State as systems using waters contaminated by effluents from nuclear facilities must continue to sample until the State reviews and either reaffirms or removes the designation.

    (i) Quarterly monitoring for gross beta particle activity shall be based on the analysis of monthly samples or the analysis of a composite of three monthly samples. The former is recommended.

    (ii) For iodine-131, a composite of five consecutive daily samples shall be analyzed once each quarter. As ordered by the State, more frequent monitoring shall be conducted when iodine-131 is identified in the finished water.

    (iii) Annual monitoring for strontium-90 and tritium shall be conducted by means of the analysis of a composite of four consecutive quarterly samples or analysis of four quarterly samples. The latter procedure is recommended.

(iv) If the gross beta particle activity beta minus the naturally occurring potassium-40 beta particle activity at a sampling point has a running annual average (computed quarterly) less than or equal to 15 pCi/L, the State may reduce the frequency of monitoring at that sampling point to every 3 years. Systems must collect all samples required in subparagraph (b)2 during the reduced monitoring period.

(v) For systems in the vicinity of a nuclear facility, the State may allow the CWS to utilize environmental surveillance data collected by the nuclear facility in lieu of monitoring at the system's entry point(s), where the State determines if such data is applicable to a particular water system. In the event that there is a release from a nuclear facility, systems which are using surveillance data must begin monitoring at the community water system's entry point(s) in accordance with subparagraph (b)2.

3. Community water systems designated by the State to monitor for beta particle and photon radioactivity can not apply to the State for a waiver from the monitoring frequencies specified in subparagraph (b)1 or (b)2.

4. Community water systems may analyze for naturally occurring potassium-40 beta particle activity from the same or equivalent sample used for the gross beta particle activity analysis. Systems are allowed to subtract the potassium-40 beta particle activity value from the total gross beta particle activity value to determine if the screening level is exceeded. The potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentrations (in mg/L) by a factor of 0.82.

5. If the gross beta particle activity minus the naturally occurring potassium-40 beta particle activity exceeds the screening level, an analysis of the sample must be performed to identify the major radioactive constituents present in the sample and the appropriate doses must be calculated and summed to determine compliance with 1200-5-1-.06(5)(c)1, using the formula in 1200-5-1-.06(5)(c)2. Doses must also be calculated and combined for measured levels of tritium and strontium to determine compliance.

6. Systems must monitor monthly at the sampling point(s) which exceed the maximum contaminant level in 1200-5-1-.06(5)(c) beginning the month after the exceedance occurs. Systems must continue monthly monitoring until the system has established, by a rolling average of 3 monthly samples, that the MCL is being met. Systems who establish that the MCL is being met must return to quarterly monitoring until they meet the requirements set forth in paragraph (b)1(ii) or (b)2(i).

(c) General monitoring and compliance requirements for radionuclides.

1. The State may require more frequent monitoring than specified in paragraphs (a) and (b), or may require confirmation samples at its discretion. The results of the initial and confirmation samples will be averaged for use in compliance determinations.

2. Each public water systems shall monitor at the time designated by the State during each compliance period.

3. Compliance: Compliance the radionuclide MCLs will be determined based on the analytical result(s) obtained at each sampling point. If one sampling point is in violation of an MCL, the system is in violation of the MCL.

   (i) For systems monitoring more than once per year, compliance with the MCL is determined by a running annual average at each sampling point. If the average of any sampling point is greater than the MCL, then the system is out of compliance with the MCL.

   (ii) For systems monitoring more than once per year, if any sample result will cause the running average to exceed the MCL at any sample point, the system is out of compliance with the MCL immediately.

   (iii) Systems must include all samples taken and analyzed under the provisions of this section in determining compliance, even if that number is greater than the minimum required.

   (iv) If a system does not collect all required samples when compliance is based on a running annual average of quarterly samples, compliance will be based on the running average of the samples collected.

   (v) If a sample result is less than the detection limit, zero will be used to calculate the annual average, unless a gross alpha particle activity is being used in lieu of radium-226 and/or uranium. If the gross alpha particle activity result is less than detection, 1/2 the detection limit will be used to calculate the annual average.

4. States have the discretion to delete results of obvious sampling or analytic errors.

5. If the MCL for radioactivity set forth in 1200-5-1-.06(5) is exceeded, the operator of a community water system must give notice to the State pursuant to 1200-5-1-.20 and to the public as required by 1200-5-1-.19.

Rulemaking Authority: T.C.A. 68-221-704 and T.C.A. 4-5-202
Substantive Authority: T.C.A. 68-221-701 et. seq.

Amendments

Section 1 F. Radioactive Contaminants only of Appendix A of Rule 1200-5-1-.19 Notification of Customers is amended by deleting Section 1 F. in its entirety and by the addition of revised language so and by redesignating endnotes 9 through 17 as endnotes 11 through 19: and adding new endnotes 9 and 10 that as amended it shall read:

APPENDIX A TO 1200-5-1-.19.---NPDWR VIOLATIONS AND OTHER SITUATIONS REQUIRING PUBLIC NOTICE[1]

Contaminant	MCL/MRDL/TT violations[2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
I. Violations of National Primary Drinking Water Regulations (NPDWR):[3]				
A. Microbiological Contaminants				
1. Total coliform	2	1200-5-1-.06(4)(a)	3	1200-5-1-.07(1)-(2)
2. Fecal coliform/E.coli	1	1200-5-1-.06(4)(b)	[4]1,3	1200-5-1-.07(1)-(2)
3. Turbidity MCL	2	1200-5-1-.06(4)(a)	3	1200-5-1-.08
4. Turbidity MCL(average of 2 days' samples > 2 NTU)	[5]2,1	1200-5-1-.06(3)(b)	3	1200.-5-1-.08
5. Turbidity (for TT violations resulting from a Single exceedance of maximum allowable turbidity level)	[6]2,1	1200-5-1-.31(2)(a) 1200-5-1-.31(2)(a) 1200-5-1-.31(4)(a)2. 1200-5-1-.31(4)(b)2 .1200-5-1-.31(4)(b)2. 1200-5-1-.31(4)(b)2.	3	1200-5-1-.31 1200-5-1-.31 1200-5-1-.31 1200-5-1-.31
6. Surface Water Treatment Rule violations other than violations resulting from single exceedance of max. allowable turbidity level (TT) [1200-5-1-.31(4)]	2	1200-5-1-.31(1)-(4)	3	1200-5-1-.31(4)
7. Interim Enhanced Surface Water Treatment Rule violations, other than violations resulting from single exceedance of max turbidity level (TT) [1200-5-1-.31(4)	2	1200-5-1-.31(1)-(4)	3	1200-5-1-.31(4)(c)
8. Filter Backwash Recycling Rule Violations	2	`1200-5-1-.31(9)	3	1200-05-1-.31(9)
B. Inorganic Chemicals (IOCs)				
1. Antimony	2	1200-5-1-.06(1)(b)1.	3	1200-5-1-.09
2. Arsenic	2	1200-5-1-.06(1)(b)2.	3	1200-5-1-.09
3. Asbestos (fibers >10 µm)	2	1200-5-1-.06(1)(b)3.	3	1200-5-1-.09
4. Barium	2	1200-5-1-.06(1)(b)5.	3	1200-5-1-.09
5. Beryllium	2	1200-5-1-.06(1)(b)4.	3	1200-5-1-.09
6. Cadmium	2	1200-5-1-.06(1)(b)6.	3	1200-5-1-.09
7. Chromium (total)	2	1200-5-1-.06(1)(b)7.	3	1200-5-1-.09
8. Cyanide	2	1200-5-1-.06(1)(b)8.	3	1200-5-1-.09
9. Fluoride	2	1200-5-1-.06(1)(b)9.	3	1200-5-1-.09
10. Mercury (inorganic)	2	1200-5-1-.06(1)(b)10.	3	1200-5-1-.09
11. Nickel	2	1200-5-1-.06(1)(b)11.	3	1200-5-1-.09
12. Nitrate	1	1200-5-1-.06(1)(b)12.	[8]1,3	1200-5-1-.09
13. Nitrite	1	1200-5-1-.06(1)(b)13.	[8]1,3	1200-5-1-.09
14. Total Nitrate and Nitrite	1	1200-5-1-.06(1)(b)14.	3	1200-5-1-.09
15. Selenium	2	1200-5-1-.06(1)(b)15.	3	1200-5-1-.09
16. Thallium	2	1200-5-1-.06(1)(b)16.	3	1200-5-1-.09
C. Lead and Copper Rule (Action Level for lead is 0.015 mg/L, for copper is 1.3 mg/L)				
1. Lead and Copper Rule (TT)	2	1200-5-1-.33(1)-(6)	3	1200-5-1-.33
D. Synthetic Organic Chemicals (SOCs)				
1. 2,4-D	2	1200-5-1-.06(2)(a)6.	3	1200-5-1-.10
2. 2,4,5-TP (Silvex)	2	1200-5-1-.06(2)(a)14.	3	1200-5-1-.10
3. Alachlor	2	1200-5-1-.06(2)(a)1.	3	1200-5-1-.10
4. Atrazine	2	1200-5-1-.06(2)(a)2.	3	1200-5-1-.10
5. Benzo(a)pyrene (PAHs)	2	1200-5-1-.06(2)(a)16.	3	1200-5-1-.10
6. Carbofuran	2	1200-5-1-.06(2)(a)3.	3	1200-5-1-.10
7. Chlordane	2	1200-5-1-.06(2)(a)4.	3	1200-5-1-.10
8. Dalapon	2	1200-5-1-.06(2)(a)17.	3	1200-5-1-.10
9. Di (2-ethylhexyl) adipate	2	1200-5-1-.06(2)(a)18.	3	1200-5-1-.10
10. Di (2-ethylhexyl) phthalate	2	1200-5-1-.06(2)(a)19.	3	1200-5-1-.10
11. Dibromochloropropane	2	1200-5-1-.06(2)(a)20.	3	1200-5-1-.10
12. Dinoseb	2	1200-5-1-.06(2)(a)20.	3	1200-5-1-.10
13. Dioxin (2,3,7,8-TCDD)	2	1200-5-1-.06(2)(a)29.	3	1200-5-1-.10
14. Diquat	2	1200-5-1-.06(2)(a)21.	3	1200-5-1-.10
15. Endothall	2	1200-5-1-.06(2)(a)22.	3	1200-5-1-.10

APPENDIX A TO 1200-5-1-.19.---NPDWR VIOLATIONS AND OTHER SITUATIONS REQUIRING PUBLIC NOTICE[1]

Contaminant	MCL/MRDL/TT violations[2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
16. Endrin	2	1200-5-1-.06(2)(a)30.	3	1200-5-1-.10
17. Ethylene Dibromide	2	1200-5-1-.06(2)(a)7.	3	1200-5-1-.10
18.Glyphospate	2	1200-5-1-.06(2)(a)23.	3	1200-5-1-.10
19. Heptachlor	2	1200-5-1-.06(2)(a)8.	3	1200-5-1-.10
20. Heptachlor epoxide	2	1200-5-1-.06(2)(a)9.	3	1200-5-1-.10
21. Hexachlorobenzene	2	1200-5-1-.06(2)(a)24.	3	1200-5-1-.10
22. Hexachlorocyclo-pentadiene	2	1200-5-1-.06(2)(a)25.	3	1200-5-1-.10
23. Lindane	2	1200-5-1-.06(2)(a)10.	3	1200-5-1-.10
24. Methoxchlor	2	1200-5-1-.06(2)(a)11.	3	1200-5-1-.10
25. Oxamyl (Vydate)	2	1200-5-1-.06(2)(a)26.	3	1200-5-1-.10
26. Pentachlorophenol	2	1200-5-1-.06(2)(a)15.	3	1200-5-1-.10
27. Picloram	2	1200-5-1-.06(2)(a)27.	3	1200-5-1-.10
28. Polychlorinated biphenyls (PCBs)	2	1200-5-1-.06(2)(a)12.	3	1200-5-1-.10
29. Simazine	2	1200-5-1-.06(2)(a)28.	3	1200-5-1-.10
30. Toxaphene	2	1200-5-1-.06(2)(a)13.	3	1200-5-1-.10
E. Volatile Organic Chemicals (VOCs)				
1. Benzene	2	1200-5-1-.25(2)(c)	3	1200-5-1-.26
2. Carbon tetrachloride	2	1200-5-1-.25(2)(b)	3	1200-5-1-.26
3. Chlorobenzene (monochlorbenzene)	2	1200-5-1-.25(2)(1)	3	1200-5-1-.26
4. o-Dichlorobenzene	2	1200-5-1-.25(2)(m)	3	1200-5-1-.26
5. p-Dichlorobenzene	2	1200-5-1-.25(2)(h)	3	1200-5-1-.26
6. 1,2-Dichloroethane	2	1200-5-1-.25(2)(d)	3	1200-5-1-.26
7. 1,1-Dichloroethylene	2	1200-5-1-.25(2)(f)	3	1200-5-1-.26
8. cis-1,2-Dichloroethylene	2	1200-5-1-.25(2)(e)	3	1200-5-1-.26
9. trans-1,2-Dichloroethylene	2	1200-5-1-.25(2)(q)	3	1200-5-1-.26
10. Dichloromethane	2	1200-5-1-.25(2)(s)	3	1200-5-1-.26
11. 1,2-Dichloropropane	2	1200-5-1-.25(2)(j)	3	1200-5-1-.26
12. Ethylbenzene	2	1200-5-1-.25(2)(k)	3	1200-5-1-.26
13. Styrene	2	1200-5-1-.25(2)(n)	3	1200-5-1-.26
14. Tetrachloroethylene	2	1200-5-1-.25(2)(o)	3	1200-5-1-.26
15. Toluene	2	1200-5-1-.25(2)(p)	3	1200-5-1-.26
16. 1,2,4-Trichlorobenzene	2	1200-5-1-.25(2)(t)	3	1200-5-1-.26
17. 1,1,1-Trichloroethane	2	1200-5-1-.25(2)(g)	3	1200-5-1-.26
18. 1,1,2-Trichloroethane	2	1200-5-1-.25(2)(w)	3	1200-5-1-.26
19. Trichloroethylene	2	1200-5-1-.25(2)(a)	3	1200-5-1-.26
20. Vinyl chloride	2	1200-5-1-.25(2)(c)	3	1200-5-1-.26
21. Xylenes (total)	2	1200-5-1-.25(2)(r)	3	1200-5-1-.26
F. Radioactive Contaminants				
1. Beta/photon emitters	2	1200-5-1-.06(5)(b)	3	1200-5-1-.11
2. Alpha emitters	2	1200-5-1-.06(5)(a)	3	1200-5-1-.11
3. Combined radium (226 & 228)	2	1200-5-1-.06(5)(a)2.	3	1200-5-1-.11
4. Uranium	[9]2	1200-5-1-.06(5)(c)	[10]3	1200-5-1-.11
G. Disinfection Byproducts (DBPs), Byproduct Precursors, Disinfectant Residuals. Where Disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection byproducts (DBPs). EPA sets standards for controlling the levels of disinfectants and DBPs in drinking water including trihalomethanes (THMs) and haloacetic acids (HAAs).[11]				
1. Total trihalomethanes (TTHMs)	2	[12]1200-5-1-.06(6)(c)	3	1200-5-1-.36
	2	1200-5-1-.06(6)(a)	3	1200-5-1-.36
2. Haloacetic Acids (HAA5)	2	1200-5-1-.06(6)(a)	3	1200-5-1-.36
3. Bromate	2	1200-5-1-.06(6)(a)	3	1200-5-1-.36
4. Chlorite	2	1200-5-1-.06(6)(a)	3	1200-5-1-.36
5. Chlorine (MRDL)	2	1200-5-1-.06(6)(c)	3	1200-5-1-.36
6. Chloramine (MRDL)	2	1200-5-1-.06(6)(c)	3	1200-5-1-.36

APPENDIX A TO 1200-5-1-.19.---NPDWR VIOLATIONS AND OTHER SITUATIONS REQUIRING PUBLIC NOTICE[1]

Contaminant	MCL/MRDL/TT violations[2]		Monitoring & testing procedure violations	
	Tier of public notice required	Citation	Tier of public notice required	Citation
7. Chlorine dioxide (MRDL), where any 2 consecutive daily samples at entrance to distribution system only are above MRDL	2	1200-5-1-.36(7)(c)2..(ii)	2[13], 3	1200-5-1-.36
8. Chlorine dioxide (MRDL), where sample(s) in distribution system the next day are also above MRDL	[14]1	1200-5-1-.36(7)(c)2.(i)	1	1200-5-1-.36
9. Control of DBP precursors—TOC (TT)	2	1200-5-1-.36-(7)(d)	3	1200-5-1-.36
10. Bench marking and disinfection profiling	N/A	N/A	3	1200-5-1-.36
11. Development of monitoring plan	N/A	N/A	3	1200-5-1-.36
H. Other Treatment Techniques				
1. Acrylamide (TT)	2	1200-5-1-.17(31)	N/A	N/A
2. Epichlorohydrin (TT)	2	1200-5-1-.17(31)	N/A	N/A
II. Unregulated Contaminant Monitoring: [15]				
A. Unregulated contaminants	N/A	N/A	3	1200-5-1-.28
B. Nickel	2	1200-5-1-.06(b)	3	1200-5-1-.09
III. Public Notification for Variances and Exemptions:				
A. Operation under a variance or exemption	3	[16]1200-5-1-.19(2)(b)	N/A	N/A
B. Violation of conditions of a variance or exemption	2	[17]1200-5-1-.19(2)(b)	N/A	N/A
IV. Other Situations Requiring Public Notification:				
A. Fluoride secondary maximum contaminant Level (SMCL) exceedance	3	1200-5-1-.19(q)	N/A	N/A
B. Exceedance of nitrate MCL for non-community systems, as allowed by department	1	1200-5-1-.19(1)(a)3.	N/A	N/A
C. Availability of unregulated contaminant monitoring data	3	1200-5-1-.19(10)	N/A	N/A
D. Waterborne disease outbreak	1	1200-5-1-.31(2)(c)2.	N/A	N/A
E. Other waterborne emergency [18]	1	N/A	N/A	N/A
F. Other situations as determined by the department	[19]1, 2, 3	N/A	N/A	N/A

Appendix A –Endnotes

1. Violations and other situations not listed in this table (e.g., reporting violations and failure to prepare Consumer Confidence Reports), do not require notice, unless otherwise determined by the department. The department may, at its option, also require a more stringent public notice tier (e.g., Tier 1 instead of Tier 2 or Tier 2 instead of Tier 3) for specific violations and situations listed in this Appendix, as authorized under 1200-5-1-.19(2)(a) and (3)(a).
2. MCL – Maximum contaminant level, MRDL – Maximum residual disinfectant level, TT-Treatment technique.
3. The term Violations of National Primary Drinking Water Regulations (NPDWR) is used here to include violations of MCL, MRDL, treatment technique, monitoring, and testing procedure requirements.
4. Failure to test for fecal coliform or E.coli is a Tier 1 violation if testing is not done after any repeat sample tests positive for coliform. All other total coliform monitoring and testing procedure violations are Tier 3.
5. Systems that violate the turbidity MCL of 2 NTU based on an average of measurements over two consecutive days must consult with the department within 24 hours after learning of the violation. Based on this consultation, the department may subsequently decide to elevate the violation to Tier 1. If a system is unable to make contact with the department in the 24-hour period, the violation is automatically elevated to Tier 1.
6. Systems with treatment technique violations involving a single exceedance of a maximum turbidity limit under the Surface Water Treatment Rule (SWTR) or the Interim Enhanced Surface Water Treatment Rule (IESWTR) are required to consult with the department within 24 hours after learning of the violation. Based on this consultation, the department may subsequently decide to elevate the violation to Tier 1. If a system is unable to make contact with the department in the 24-hour period, the violation is automatically elevated to Tier 1.
7. Most of the requirements of the Interim Enhanced Surface Water Treatment Rule 1200-5-1-.31 become effective January 1, 2002 for Subpart H systems (surface water systems and ground water systems under the direct influence of surface water) serving at least 10,000 persons. The Surface Water Treatment Rule remains in effect for systems serving at least 10,000 persons even after 2002; the Interim Enhanced Surface Water Treatment Rule adds additional requirements and does not in many cases supercede the SWTR.
8. Failure to take a confirmation sample within 24 hours for nitrate or nitrite after an initial sample exceeds the MCL is a Tier 1 violation. Other monitoring violations for nitrate are Tier 3.
9. The uranium MCL Tier 2 violation citations are effective December 8, 2003 for all community water systems.

10. The uranium Tier 3 violations are effective December 8,.2000 or the effective date of these rules whichever is later for all community water systems
11. Subpart H community and non-transient non-community systems serving ≥10,000 must comply with new DBP MCLs, disinfectant MRDLs, and related monitoring requirements beginning January 1, 2002. All other community and non-transient non-community systems must meet the MCLs and MRDLs beginning January 1, 2004. Subpart H transient non-community systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2002. Subpart H transient non-community systems serving fewer than 10,000 persons and using only ground water not under the direct influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004.
12. The 0.100 mg/L standard will no longer apply after January 1, 2004.
13. Failure to monitor for chlorine dioxide at the entrance to the distribution system the day after exceeding the MRDL at the entrance to the distribution system is a Tier 2 violation.
14. If any daily sample taken at the entrance to the distribution system exceeds the MRDL for chlorine dioxide and one or more samples taken in the distribution system the next day exceed the MRDL, Tier 1 notification is required. Failure to take the required samples in the distribution system after the MRDL is exceeded at the entry point also triggers Tier 1 notification.
15. Some water systems must monitor for certain unregulated contaminants listed in 1200-5-1-.28.
16. This citation refers to §§1415 and 1416 of the Safe Drinking Water Act. §§1415 and 1416 require that "a schedule prescribed… for a public water system granted a variance [or exemption] shall require compliance by the system…"
17. In addition to §§1415 and 1416 of the Safe Drinking Water Act, 40 CFR 142.307 specifies the items and schedule milestones that must be included in a variance for small systems.
18. Other waterborne emergencies require a Tier 1 public notice under 1200-5-1-.19(2)(a) for situations that do not meet the definition of a waterborne disease outbreak given in 1200-5-1-.04 but that still have the potential to have serious adverse effects on health as a result of short-term exposure. These could include outbreaks not related to treatment deficiencies, as well as situations that have the potential to cause outbreaks, such as failures or significant interruption in water treatment processes, natural disasters that disrupt the water supply or distribution system, chemical spills, or unexpected loading of possible pathogens onto the source water.
19. The department may place other situations in any tier it believes appropriate, based on threat to public health.

Rulemaking Authority: T.C.A. 68-221-704 and T.C.A. 4-5-202
Substantive Authority: T.C.A. 68-221-701 et. seq.

Amendments

Appendix B Standard Health Effects Language for Public Notification and endnotes of Rule 1200-5-1-.19 Notification of Customers is amended by deleting the existing language in its entirety and by the addition of new language so that as amended it shall read:

APPENDIX B TO 1200-5-1-.19. –STANDARD HEALTH EFFECTS FOR PUBLIC NOTIFICATION

Contaminant	MCLG[1] mg/l	MCL[2] mg/l	Standard health effects language for public notification
National Primary Drinking Water Regulations (NRDWR):			
A. Microbiological Contaminants			
1a. Total coliform	Zero	See foot note[3]	Coliforms are bacteria that are naturally present in the environment and are used as an indicator that other, potentially-harmful, bacteria may be present. Coliforms were found in more samples than allowed and this was a warning of potential problems.
1b. Fecal coliform/E.coli	Zero	Zero	Fecal coliforms and E.coli are bacteria whose presence indicates that the water may be contaminated with human or animal wastes. Microbes in these wastes can cause short-term effects, such as diarrhea, cramps, nausea, headaches, or other symptoms. They may pose a special health risk for infants, young children, some of the elderly, and people with severely compromised immune systems.
2a. Turbidity (MCL)[4]	None	1 NTU [5]/2 NTU	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
2b. Turbidity (SWTR TT)[6] (surface water and ground water under the direct influence)	None	TT[7]	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
2c. Turbidity (IESWTR TT)[8] (surface water and ground water under the direct influence of surface water)	None	TT	Turbidity has no health effects. However, turbidity can interfere with disinfection and provide a medium for microbial growth. Turbidity may indicate the presence of disease-causing organisms. These organisms include bacteria, viruses, and parasites that can cause symptoms such as nausea, cramps, diarrhea and associated headaches.
B. Surface Water Treatment Rule (SWTR) and Interim Enhanced Surface Water Treatment Rule (IESWTR) and Filter Backwash Recycling Rule (FBRR) violations:			
3. Giardia lamblia (SWTR/ IESWTR)	Zero	TT[10]	Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.
4. Viruses (SWTR/IESWTR).			Same as A.3.
5. Heterotrophic plate count (HPC) bacteria[9] (SWTR/(IESWTR).			Same as A.3.
6. Legionella (SWTR/IESWTR).			Same as A.3.
7. Cryptosporidium (IESWTR/FBRR)			Same as A.3.
C. Inorganic Chemicals			
8. Antimony	0.006	0.006	Some people who drink water containing antimony well in excess of the MCL over many years could experience increases in blood cholesterol and decreases in blood sugar.
9. Arsenic	None	0.05	Some people who drink water containing arsenic in excess of the MCL over many years could experiences skin damage or problems with their circulatory system, and may have an increased risk of getting cancer.
10. Asbestos (10 µm)	7 MFL[11]	7 MFL	Some people who drink water containing asbestos in excess of the MCL over many years may have an increased risk of developing benign intestinal polyps.

APPENDIX B TO 1200-5-1-.19. –STANDARD HEALTH EFFECTS FOR PUBLIC NOTIFICATION

Contaminant	MCLG[1] mg/l	MCL[2] mg/l	Standard health effects language for public notification
11. Barium	2	2	Some people who drink water containing barium in excess of the MCL over many years could experience an increase in their blood pressure.
12. Beryllium	0.004	0.004	Some people who drink water containing beryllium well in excess of the MCL over many years could develop intestinal lesions.
13. Cadmium	0.005	0.005	Some people who drink water containing cadmium in excess of the MCL over many years could experience kidney damage.
14. Chromium (total)	0.1	0.1	Some people who drink water containing chromium well in excess of the MCL over many years could experience allergic dermatitis.
15. Cyanide	0.2	0.2	Some people who drink water containing cyanide well in excess of the MCL over many years could experience nerve damage or problems with their thyroid.
16. Fluoride	4.0	4.0	Some people who drink water containing fluoride in excess of the MCL over many years could get bone disease, including pain and tenderness of the bones. Fluoride in drinking water at half the MCL or more may cause mottling of children's teeth, usually in children less than nine years old. Mottling, also known as dental fluorosis, may include brown staining and/or pitting of the teeth, and occurs only in developing teeth before they erupt from the gums.
17. Mercury (inorganic)	0.002	0.002	Some people who drink water containing inorganic mercury well in excess of the MCL over many years could experience kidney damage.
18. Nitrate	10	10	Infants below the age of six months who drink water containing nitrate in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby symptoms.
19. Nitrite	1	1	Infants below the age of six months who drink water containing nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby symptoms.
20. Total Nitrate and Nitrite	10	10	Infants below the age of six months who drink water containing nitrate and nitrite in excess of the MCL could become seriously ill and, if untreated, may die. Symptoms include shortness of breath and blue baby symptoms.
21. Selenium	0.05	0.05	Selenium is an essential nutrient. However, some people who drink water containing selenium in excess of the MCL over many years could experience hair or fingernail losses, numbness in fingers or toes, or problems with their circulation.
22. Thallium	0.0005	0.002	Some people who drink water containing thallium in excess of the MCL over many years could experience hair loss, changes in their blood, or problems with their kidneys, intestines, or liver.
D. Lead and Copper Rule:			
23. Lead	Zero	TT[12]	Infants and children who drink water containing lead in excess of the action level could experience delays in their physical or mental development. Children could show slight deficits in attention span and learning abilities. Adults who drink this water over many years could develop kidney problems or high blood pressure.

APPENDIX B TO 1200-5-1-.19. –STANDARD HEALTH EFFECTS FOR PUBLIC NOTIFICATION

Contaminant	MCLG[1] mg/l	MCL[2] mg/l	Standard health effects language for public notification
24. Copper	1.3	TT[13]	Copper is an essential nutrient, but some people who drink water containing copper in excess of the action level over a relatively short amount of time could experience gastrointestinal distress. Some people who drink water containing copper in excess of the action level over many years could suffer liver or kidney damage. People with Wilson's disease should consult their personal doctor.
E. Synthetic Organic Compounds			
25. 2,4-D	0.07	0.07	Some people who drink water containing the weed killer 2,4-D well in excess of the MCL over many years could experience problems with their kidneys, liver or adrenal glands.
26. 2,4,5-TP (Silvex)	0.05	0.05	Some people who drink water containing silvex in excess of the MCL over many years could experience liver problems.
27. Alachlor	Zero	0.002	Some people who drink water containing alachlor in excess of the MCL over many years could have problems with their eyes, liver kidneys, or spleen, or experience anemia, and may have an increased risk of getting cancer.
28. Atrazine	0.003	0.003	Some people who drink water containing atrazine well in excess of the MCL over many years could experience problems with their cardiovascular system or reproductive difficulties.
29. Benzo(a)pyrene (PAHs)	Zero	0.0002	Some people who drink water containing benzo(a)pyrene in excess of the MCL over many years may experience reproductive difficulties and may have an increased risk of getting cancer.
30. Carbofuran	0.04	0.04	Some people who drink water containing carbofuran in excess of the MCL over many years could experience problems with their blood, or nervous or reproductive systems.
31. Chlordane	Zero	0.002	Some people who drink water containing chlordane in excess of the MCL over many years could experience problems with their liver or nervous system, and may have an increased risk of getting cancer.
32. Dalapon	0.2	0.2	Some people who drink water containing dalapon well in excess of the MCL over many years could experience minor kidney changes.
33. Di (2-ethylexyl) adipate	0.4	0.4	Some people who drink water containing di (2-ethyhexyl) adipate well in excess of the MCL over many years could experience general toxic effects or reproductive difficulties.
34. Di (2-ethylhexyl) phthalate	Zero	0.006	Some people who drink water containing di (2-ethylhexyl) phthalate in excess of the MCL over many years may have problems with their liver, or experience reproductive difficulties, and may have an increased risk of getting cancer.
35. Dibromochloropropane (DBCP)	Zero	0.0002	Some people who drink water containing DBCP in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.
36. Dinoseb	0.007	0.007	Some people who drink water containing dinoseb well in excess of the MCL over many years could experience reproductive difficulties.
37. Dioxin (2,3,7,8-TCDD)	Zero	$3x10^{-8}$	Some people who drink water containing dioxin in excess of the MCL over many years could experience reproductive difficulties and may have an increased risk of getting cancer.

APPENDIX B TO 1200-5-1-.19. –STANDARD HEALTH EFFECTS FOR PUBLIC NOTIFICATION

Contaminant	MCLG[1] mg/l	MCL[2] mg/l	Standard health effects language for public notification
38. Diquat	0.02	0.02	Some people who drink water containing diquat in excess of the MCL over many years could get cataracts.
39. Endothall	0.1	0.1	Some people who drink water containing endothall in excess of the MCL over many years could experience problems with their stomach or intestines.
40. Endrin	0.002	0.002	Some people who drink water containing endrin in excess of the MCL over many years could experience liver problems.
41. Ethylene dibromide	Zero	0.00005	Some people who drink water containing ethylene dibromide in excess of the MCL over many years could experience problems with their liver, stomach, reproductive system, or kidneys, and may have an increased risk of getting cancer.
42. Glyphosate	0.7	0.7	Some people who drink water containing glyphosate in excess of the MCL over many years could experience problems with their kidneys or reproductive difficulties.
43. Heptachlor	Zero	0.0004	Some people who drink water containing heptachlor in excess of the MCL over many years could experience liver damage and may have an increased risk of getting cancer.
44. Heptachlor epoxide	Zero	0.0002	Some people who drink water containing heptachlor epoxide in excess of the MCL over many years could experience liver damage, and may have an increased risk of getting cancer.
45. Hexachlorobenzene	Zero	0.001	Some people who drink water containing hexachlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys, or adverse reproductive effects, and may have an increased risk of getting cancer.
46. Hexachlorocyclopentadiene	0.05	0.05	Some people who drink water containing hexachlorocyclopentadiene well in excess of the MCL over many years could experience problems with their kidneys or stomach.
47. Lindane	0.0002	0.0002	Some people who drink water containing lindane in excess of the MCL over many years could experience problems with their kidneys or liver.
48. Methoxychlor	0.04	0.04	Some people who drink water containing methoxychlor in excess of the MCL over many years could experience reproductive difficulties.
49. Oxamyl (Vydate)	0.2	0.2	Some people who drink water containing oxamyl in excess of the MCL over many years could experience slight nervous system effects.
50. Pentachlorophenol	Zero	0.001	Some people who drink water containing pentachlorophenol in excess of the MCL over many years could experience problems with their liver or kidneys, and may have an increased risk of getting cancer.
51. Picloram	0.5	0.5	Some people who drink water containing picloram in excess of the MCL over many years could experience problems with their liver.
52. Polychlorinated biphenyls (PCBs)	Zero	0.0005	Some people who drink water containing PCBs in excess of MCL over many years could experience changes in their skin, problems with their thymus gland, immune deficiencies, or reproductive or nervous system difficulties, and may have an increased risk of getting cancer.
53. Simazine	0.004	0.004	Some people who drink water containing simazine in excess of the MCL over many years could experience problems with their blood.

APPENDIX B TO 1200-5-1-.19. –STANDARD HEALTH EFFECTS FOR PUBLIC NOTIFICATION

Contaminant	MCLG[1] mg/l	MCL[2] mg/l	Standard health effects language for public notification
54. Toxaphene	Zero	0.003	Some people who drink water containing toxaphene in excess of the MCL over many years could have problems with their kidneys, liver, or thyroid, and may have an increased risk of getting cancer.
F. Volatile Organic Compounds VOC)			
55. Benzene	Zero	0.005	Some people who drink water containing benzene in excess of the MCL over many years could experience anemia or a decrease in blood platelets, and may have an increased risk of getting cancer.
56. Carbon tetrachloride	Zero	0.005	Some people who drink water containing carbon tetrachloride in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
57. Chlorobenzene (monochloro-benzene)	0.1	0.1	Some people who drink water containing chlorobenzene in excess of the MCL over many years could experience problems with their liver or kidneys.
58. *o*-Dichlorobenzene	0.6	0.6	Some people who drink water containing o-dichlorobenzene in excess of the MCL over many years could experience problems with their liver, kidneys, or circulatory systems.
59. *p*-Dichlorobenzene	0.075	0.075	Some people who drink water containing p-dichlorobenzene in excess of the MCL over many years could experience anemia, damage to their liver, kidneys, or spleen, or changes in their blood.
60. 1,2-Dichloroethane	Zero	0.005	Some people who drink water containing 1,2-dichloroethane in excess of the MCL over many years may have an increased risk of getting cancer.
61. 1,1-Dichloroethylene	0.007	0.007	Some people who drink water containing 1,1-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
62. *cis*-1,2-Dichloroethylene	0.07	0.07	Some people who drink water containing cis-1,2-dichloroethylene in excess of the MCL over many years could experience problems with their liver.
63. *trans*-1,2-Dichloroethylene	0.1	0.1	Some people who drink water containing trans-1,2-dichloroethylene well in excess of the MCL over many years could experience problems with their liver.
64. Dichloromethane	Zero	0.005	Some people who drink water containing dichloromethane in excess of the MCl over many years could have liver problems and may have an increased risk of getting cancer.
65. 1,2-Dichloropropane	Zero	0.005	Some people who drink water containing 1,2-dichloropropane in excess of the MCL over many years may have an increased risk of getting cancer.
66. Ethylbenzene	0.7	0.7	Some people who drink water containing ethylbenzene well in excess of the MCL over many years could experience problems with their liver or kidneys.
67. Styrene	0.1	0.1	Some people who drink water containing styrene well in excess of the MCL over many years could have problems with their liver, kidneys, or circulatory system.
68. Tetrachloroethylene	Zero	0.005	Some people who drink water containing tetrachloroethylene in excess of the MCL over many years could have problems with their livers, and may have an increased risk of getting cancer.
69. Toluene	1	1	Some people who drink water containing toluene well in excess of the MCL over many years could have problems with their nervous system, kidneys, or liver.

APPENDIX B TO 1200-5-1-.19. –STANDARD HEALTH EFFECTS FOR PUBLIC NOTIFICATION

Contaminant	MCLG[1] mg/l	MCL[2] mg/l	Standard health effects language for public notification
70. 1,2,4-Trichlorobenzene	0.07	0.07	Some people who drink water containing 1,2,4-trichlorobenzene well in excess of the MCL over many years could experience changes in their adrenal glands.
71. 1,1,1-Trichloroethane	0.2	0.2	Some people who drink water containing 1,1,1-trichloroethane in excess of the MCL over many years could experience problems with their liver, nervous system, or circulatory problems.
72. 1,1,2-Trichloroethylene	0.003	0.005	Some people who drink water containing 1,1,2-trichloroethane well in excess of the MCL over many years could have problems with their liver, kidneys, or immune systems.
73. Trichloroethylene	Zero	0.005	Some people who drink water containing trichloroethylene in excess of the MCL over many years could experience problems with their liver and may have an increased risk of getting cancer.
74. Vinyl chloride	Zero	0.002	Some people who drink water containing vinyl chloride in excess of the MCL over many years may have an increased risk of getting cancer.
75. Xylenes (total)	10	10	Some people who drink water containing xylenes in excess of the MCL over many years could experience damage to their nervous system.
G. Radioactive Contaminants			
76. Beta/photon emitters	Zero	4 mrem/yr[14]	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
77. Alpha emitters	Zero	15 pCi/L[15]	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
78. Combined radium (226 & 228).	Zero	5 pCi/L	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
79. Uranium[16]	Zero	30ug/L	Some people who drink water containing uranium in excess of the MCL over many years may have an increased risk of getting cancer and kidney toxicity.
H. Disinfection Byproducts (DBPs), Byproducts Precursors, and Disinfectant Residuals: Where disinfection is used in the treatment of drinking water, disinfectants combine with organic and inorganic matter present in water to form chemicals called disinfection by-products (DBPs). EPA sets standards for controlling the levels of disinfectants and DBPs in drinking water, including trihalomethanes (THMs) and haloacetic acids (HAAs):[17]			
80. Total trihalomethanes (TTHMs)	N/A	0.10/080[18 19]	Some people who drink water containing trihalomethanes in excess of the MCL over many years may experience problems with their liver, kidneys, or central nervous system, and may have an increased risk of getting cancer.
81. Haloacetic Acids (HAA)	N/A	0.060[20]	Some people who drink water containing haloacetic acids in excess of the MCL over many years may have an increased risk of getting cancer.

APPENDIX B TO 1200-5-1-.19. –STANDARD HEALTH EFFECTS FOR PUBLIC NOTIFICATION

Contaminant	MCLG[1] mg/l	MCL[2] mg/l	Standard health effects language for public notification
82. Bromate	Zero	0.010	Some people who drink water containing bromate in excess of the MCL over many years may have an increased risk of getting cancer.
83. Chlorite	0.08	1.0	Some infants and young children who drink water containing chlorite in excess of the MCL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorite in excess of the MCL. Some people may experience anemia.
84. Chlorine	4 (MRDLG)[21]	4.0 (MRDL)[22]	Some people who use water containing chlorine well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chlorine well in excess of the MRDL could experience stomach discomfort.
85. Chloramines	4 (MRDLG)	4.0 (MRDL)	Some people who use water containing chloramines well in excess of the MRDL could experience irritating effects to their eyes and nose. Some people who drink water containing chloramines well in excess of the MRDL could experience stomach discomfort or anemia.
86a. Chlorine dioxide, where any 2 consecutive daily samples taken at the entrance to the distribution system are above the MRDL.	0.8 (MRDLG)	0.8 (MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. *Add for public notification only:* The chlorine dioxide violations reported today are the result of exceedances at the treatment facility only, not within the distribution system which delivers water to consumers. Continued compliance with chlorine dioxide levels within the distribution system minimizes the potential risk of these violations to consumers.
86b. Chlorine dioxide, where one or more distribution system samples are above the MRDL.	0.8 (MRDLG)	0.8 (MRDL)	Some infants and young children who drink water containing chlorine dioxide in excess of the MRDL could experience nervous system effects. Similar effects may occur in fetuses of pregnant women who drink water containing chlorine dioxide in excess of the MRDL. Some people may experience anemia. *Add for public notification only:* The chlorine dioxide violations reported today include exceedances of the EPA standard within the distribution system which delivers water to consumers. Violations of the chlorine dioxide standard within the distribution system may harm human health based on short-term exposures. Certain groups, including fetuses, infants, and young children, may be especially susceptible to nervous system effects from excessive chlorine dioxide exposure.
87. Control of DBP precursors (TOC)	None	TT	Total organic carbon (TOC) has no health effects. However, total organic carbon provides a medium for the formation of disinfection byproducts. These byproducts include trihalomethanes (THMs) and haloacetic acids (HAAs). Drinking water containing these byproducts in excess of the MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of getting cancer.
I. Other Treatment Techniques:			

APPENDIX B TO 1200-5-1-.19. –STANDARD HEALTH EFFECTS FOR PUBLIC NOTIFICATION

Contaminant	MCLG[1] mg/l	MCL[2] mg/l	Standard health effects language for public notification
88. Acrylamide	Zero	TT	Some people who drink water containing high levels of acrylamide over a long period of time could have problems with their nervous system or blood, and may have an increased risk of getting cancer.
89. Epichlorohydrin	Zero	TT	Some people who drink water containing high levels of epichlorohydrin over a long period of time could experience stomach problems, and may have an increased risk of getting cancer.

Appendix B-Endnotes

1. MCLG – Maximum contaminant level goal.
2. MCL – Maximum contaminant level.
3. For water systems analyzing at least 40 samples per month, no more than 5.0 percent of the monthly samples may be positive for total coliforms. For systems analyzing fewer than 40 samples per month, no more than one sample per month may be positive for total coliforms.
4. There are various regulations that set turbidity standards for different types of systems, including 1200-5-1-.08 and 1200-5-1-.31. The MCL for the monthly turbidity average is 1 NTU; the MCL for the 2-day average is 2 NTU for systems that are required to filter but have not yet installed filtration.
5. NTU – Nephelometric turbidity unit.
6. There are various regulations that set turbidity standards for different types of systems, including 1200-5-1-.08 and 1200-5-1-.31. Systems subject to the Surface Water Treatment Rule (both filtered and unfiltered) may not exceed 5 NTU. In addition, in filtered systems, 95 percent of samples each month must not exceed 0.5 NTU in systems using conventional or direct filtration and must not exceed 1 NTU in systems using slow sand or diatomaceous earth filtration or other filtration technologies approved by the department.
7. TT – Treatment technique.
8. There are various regulations that set turbidity standards for different types of systems, including 1200-5-1-.08 and 1200-5-1-.31. For systems subject to the IESWTR (systems serving at least 10,000 people, using surface water or ground water under the direct influence of surface water), that use conventional filtration or direct filtration, after January 1, 2002, the turbidity level of a system's combined filter effluent may not exceed 0.3 NTU in at least 95 percent of monthly measurements, and the turbidity level of a systems's combined filter effluent must not excced 1 NTU at any time. Systems subject to the IESWTR using technologies other than conventional, direct, slow sand, or diatomaceous earth filtration must meet turbidity limits set by the division.
9. The bacteria detected by heterotrophic plate count (HPC) are not necessarily harmful. HPC is simply an alternative method of determining disinfectant residual levels. The number of such bacteria is an indicator of whether there is enough disinfectant in the distribution system.
10. SWTR and IESWTR treatment technique violations that involve turbidity exceedances may use the health effects language for turbidity instead.
11. Millions fibers per liter.
12. Action Level = 0.015 mg/L.
13. Action Level = 1.3 mg/L.
14. Millirems per years.
15. Picocuries per liter.
16. The uranium MCL is effective December 8, 2003 for all community systems.
17. Surface water systems and ground water systems under the direct influence of surface water are regulated under 1200-5-1-.31. Subpart H community and non-transient non-community systems serving ≥10,000 must comply with DBP MCLs and disinfectant maximum residual disinfectant levels (MRDLs) beginning January 1, 2002. Subpart H transient non-community systems serving 10,000 or more persons and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2002. All other community and non-transient non-community water systems must meet the MCLs and MRDLs beginning January 1, 2004. Subpart H transient non-community systems serving fewer than 10,000 persons and systems using only ground water not under the influence of surface water and using chlorine dioxide as a disinfectant or oxidant must comply with the chlorine dioxide MRDL beginning January 1, 2004.
18. The MCL of 0.10 mg/l for TTHMs is in effect until January 1, 2002, for Subpart H community water systems serving 10,000 or more. This MCL is in effect until January 1, 2004, for community water systems with a population of 10,000 or more using only ground water not under the influence of surface water. After these deadlines, the MCL will be 0.080 mg/l. On January 1, 2004, all systems serving less than 10,000 will have to comply with the new MCL as well.
19. The MCL for total trihalomethanes is the sum of the concentrations of the individual trihalomethanes.
20. The MCL for haloacetic acids is the sum of the concentrations of the individual haloacetic acids.
21. MRDLG – Maximum residual disinfectant level goal.
22. MRDL – Maximum residual disinfectant level.

Rulemaking Authority: T.C.A. 68-221-704 and T.C.A. 4-5-202
Substantive Authority: T.C.A. 68-221-701 et. seq.

Amendments

The Radioactive contaminant portion of Appendix A of Rule 1200-5-1-.35 Consumer Confidence Reports only is amended by the addition of language for uranium and by the addition of MCLGs or the radioactive contaminants so that as amended it shall read as follows:

APPENDIX A

Contaminant (units)	Traditional MCL in mg/L	To convert for CCR, multiply by	MCL in CCR units	MCLG	Major sources in drinking water	Health effects language
Radioactive contaminants:						
Beta/photon emitters (mrem/yr)	4 mrem/yr		4	0	Decay of natural and man-made deposits.	Certain minerals are radioactive and may emit forms of radiation known as photons and beta radiation. Some people who drink water containing beta and photon emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Alpha emitters (pCi/l)	15 pCi/I		15	0	Erosion of natural deposits	Certain minerals are radioactive and may emit a form of radiation known as alpha radiation. Some people who drink water containing alpha emitters in excess of the MCL over many years may have an increased risk of getting cancer.
Combined radium (pCi/l)	5 pCi/l		5	0	Erosion of natural deposits	Some people who drink water containing radium 226 or 228 in excess of the MCL over many years may have an increased risk of getting cancer.
Uranium (pCi/L)	30		30	0	Erosion of natural deposits	Some people who drink water containing uranium in excess of the MCL over many years may have increased risk of geting cancer and kidney toxicity

Rulemaking Authority: T.C.A. 68-221-704 and T.C.A. 4-5-202
Substantive Authority: T.C.A. 68-221-701 et. seq.

Amendments

Rule 1200-5-1-.31 Filtration and Disinfection is amended by the addition of a new paragraph (9) so that as amended it shall read:

(9) Recycle Provisions

(a) Applicability. All subpart H systems that employ conventional filtration or direct filtration treatment and that recycle spent filter backwash water, thickener supernatant, or liquids from dewatering processes must meet the requirements in subparagraphs (b) through (d).

(b) Reporting. A system must notify the State in writing by December 8, 2003, if the system recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes. This notification must include, at a minimum, the information specified in subparagraphs (b)1 and 2.

1. A plant schematic showing the origin of all flows which are recycled (including, but not limited to, spent filter backwash water, thickener supernatant, and liquids from dewatering processes), the hydraulic conveyance used to transport them, and the location where they are re-introduced back into the treatment plant.

2. Typical recycle flow in gallons per minute (gpm), the highest observed plant flow experienced in the previous year (gpm), design flow for the treatment plant (gpm), and State-approved operating capacity for the plant where the State has made such determinations.

(c) Treatment technique requirement. Any system that recycles spent filter backwash water, thickener supernatant, or liquids from dewatering processes must return these flows through the processes of a system's existing conventional or direct filtration system as defined in 1200-5-1-.04 or at an alternate location approved by the State by June 8, 2004. If capital improvements are required to modify the recycle location to meet this requirement, all capital improvements must be completed no later than June 8, 2006.

(d) Recordkeeping. The system must collect and retain on file recycle flow information specified in subparagraphs (d)(1) through (6) or review and evaluation by the State beginning June 8, 2004.

1. Copy of the recycle notification and information submitted to the State under paragraph (b).

2. List of all recycle flows and the frequency with which they are returned.

3. Average and maximum backwash flow rate through the filters and the average and maximum duration of the filter backwash process in minutes.

4. Typical filter run length and a written summary of how filter run length is determined.

5. The type of treatment provided for the recycle flow.

6. Data on the physical dimensions of the equalization and/or treatment units, typical and maximum hydraulic loading rates, type of treatment chemicals used and average dose and frequency of use, and frequency at which solids are removed, if applicable.

Rulemaking Authority: T.C.A. 68-221-704 and T.C.A. 4-5-202
Substantive Authority: T.C.A. 68-221-701 et. seq.

I certify that this an accurate and complete representation of the intent and scope of the rulemaking proposed by the Department.

_____
(Name of Officer)
(title of officer)

Subscribed and sworn to before me on the the _____day of _____, 2000.

_____(Signature)
Notary Public

My commission expires on the _____day of _____, 20____.

The notice of rulemaking set out herein was properly filed in the Department of State on the _____day of _____ 20___.

_____(Signature)
(Name of Secretary of State)
Secretary of State

By: _____